

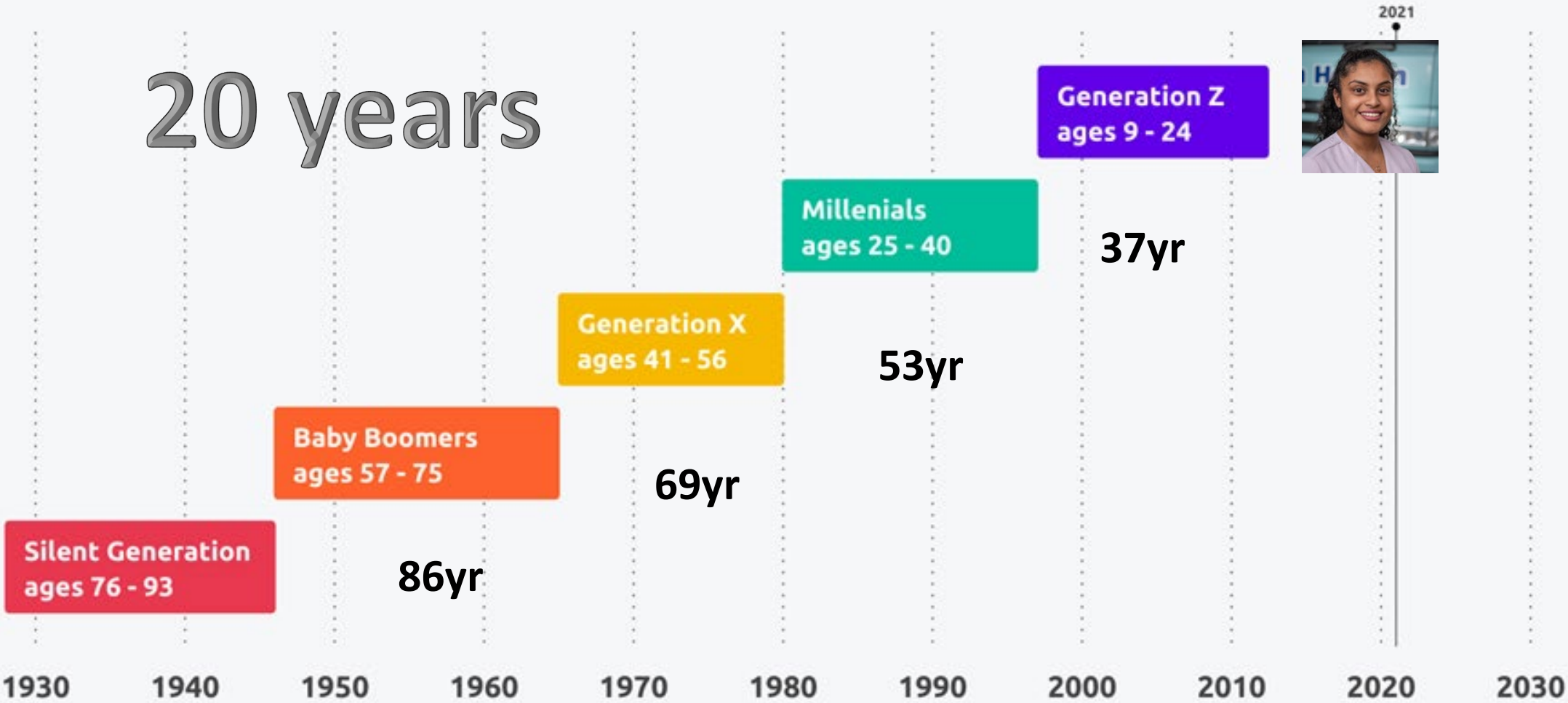
# Putting the Boot to Climate Change

Rashmi Perera | Fulton Hogan



# Why Climate change important to me...?

20 years





# What have I looked at ?

CO<sub>2</sub> from Heavy maintenance.

Mill and fill (50 mm AC)

Stabilisation (200 mm 2%)

Digouts (350 mm)

Calculated the Carbon dioxide equivalent (CO<sub>2-e</sub>)



# How did we do it?

**Research** - Fulton Hogan / Callaghan innovation “lighter road resurfacing strategies – Jack Downs, April 21”

**Broke Down** - each treatment into plant – travel - materials.

**Applied** - calculation for litres burned, tonnes used, m<sup>2</sup> constructed.

**Compared** - Treatments on a 100 m<sup>2</sup> site - 50km from depot.



## Results ... 100m<sup>2</sup> site

|               |        | Biggest reason    |                     |
|---------------|--------|-------------------|---------------------|
| Mill and Fill | 1.18 T | Single site visit | High \$\$\$         |
| Stabilisation | 1.99 T | Cement (40%)      | Faster (more m2)    |
| Digout        | 2.15 T | Construction time | New pavement - \$\$ |

Looking at a carbon lens only

# But...when selecting a Treatment

Suitability - Will it work ?

Budget - Getting the best bang for buck !

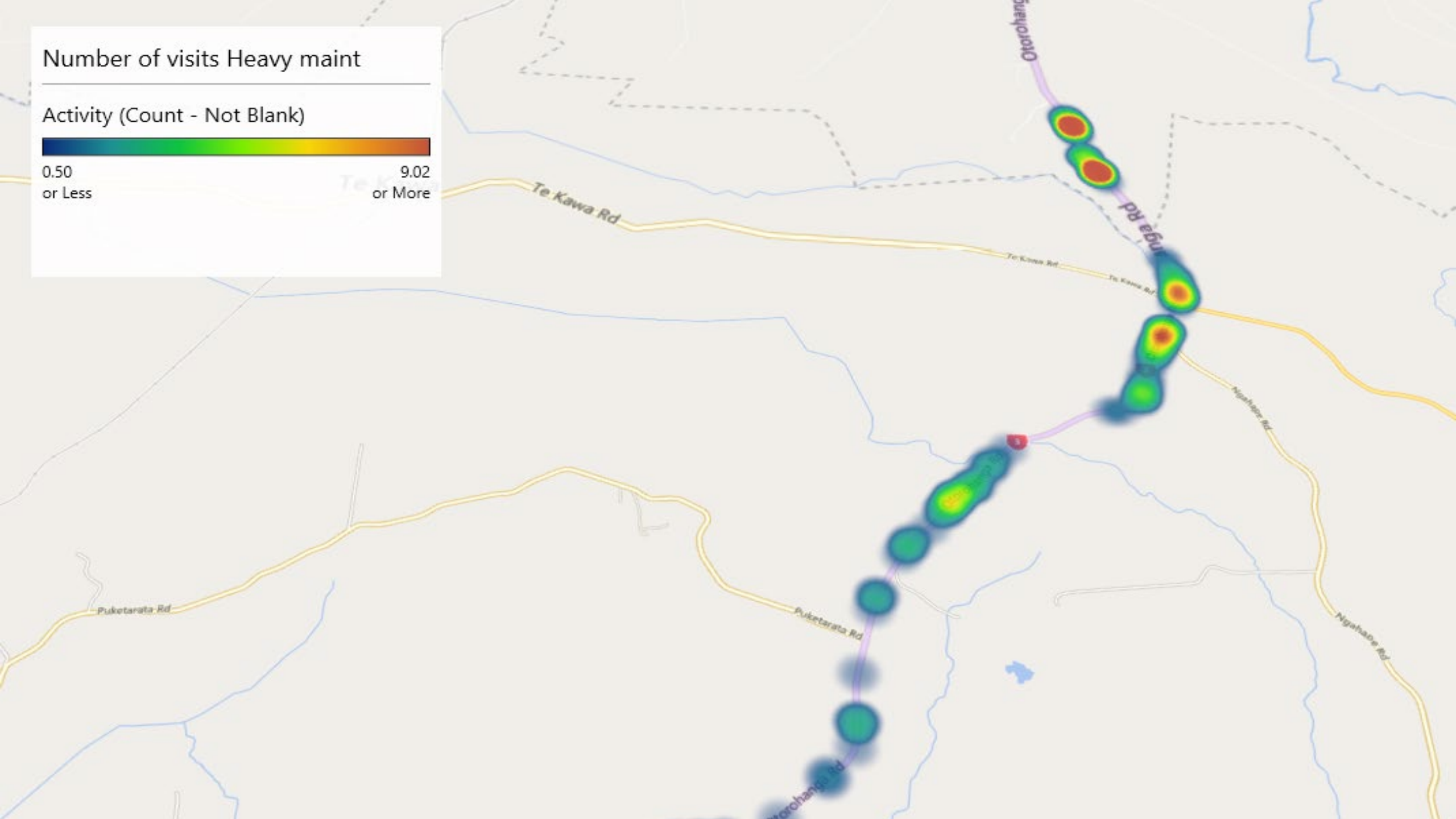
Carbon - Reducing our impact !!





## Number of visits Heavy maint

Activity (Count - Not Blank)







# Eureka Moment



7 visits in 13 years .... a lot

Nature of road maintenance

Maximise treatment life leads to greatest carbon reduction

# Conclusion

Understand - carbon impact different treatments

Know - by reducing visits we can lower CO<sub>2-e</sub>

Focus - choosing best treatment to maximise its life

Future





Training and revision - Mtc Intervention guidelines (MIG)

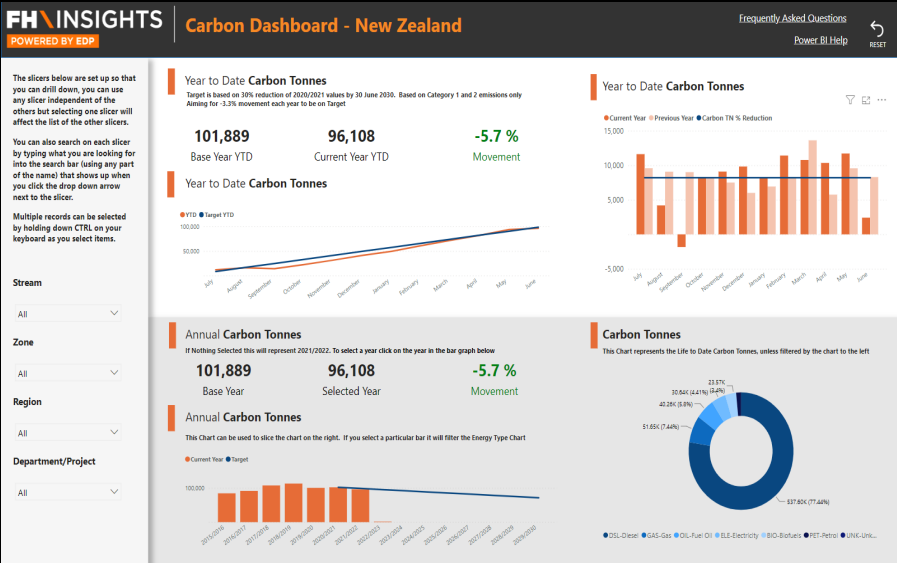
Tracking - Carbon dashboard

Product development - Important

Alternate fuels - Electric / Hydrogen

Cracking

| Severity Rating |   | U  | S1  | S2  | S3  |
|-----------------|---|--|---|---|---|
| Photo Example   |   |   |    |    |  |
| Description     |   | OPM issue + Safety<br>multiple potholes forming  | At OPM: will develop into<br>potholes quickly   | cracking clearly evident  | Emerging defect: minor cracking   |
| Root cause      |   | Longitudinal & Transverse -> pavement layers have consolidated or compacted irregularly in larger areas. -> trench settlement. -> block cracking due to loads on previously stabilised pavement layer<br>Alligator (Surfacing) & Fatigue (Pavement) -> water in base and subgrade pumped to surface through traffic loadings. -> surface failing |   |   |   |
| Cracking        | Action - Given Mts...   | <b>P - Pre-seal</b><br><br>Programme heavy maintenance:<br>Stab - 200mm depth and stabilization agent in accordance with soil tests, or Digout - depth ('blue' book), or Mill & Fill (100mm + 30mm surfacing) - most economic. Investigate/attend to drainage.<br>If length > 15% of 100m length -> REHAB  | <b>S1</b><br><br>Programme heavy maintenance:<br>Stab - 200mm depth and stabilization agent in accordance with soil tests, or Digout - depth ('blue' book), or Mill & Fill (100mm + 30mm surfacing) - most economic. Investigate/attend to drainage.<br>If length > 15% of 100m length -> REHAB | <b>S2</b><br><br>Programme heavy maintenance:<br>Rip & remake 200mm. Look for drainage issues.<br>If length > 15% of 100m length -> REHAB   | <b>S3</b><br><br>Monitor. Look for and attend to drainage issues.                   |
|                 | <b>N - Normal</b><br><br>Programme heavy maintenance:<br>Stab - 200mm depth and stabilization agent in accordance with soil tests, or Digout - depth ('blue' book), or Mill & Fill (100mm + 30mm surfacing) - most economic. Investigate/attend to drainage.<br>If length > 15% of 100m length -> REHAB | <b>S1</b><br><br>Look for and attend to drainage issues.<br>Programme for permanent repair if adjacent to other repairs.   | <b>S2</b><br><br>Monitor. Look for and attend to drainage issues.<br>Programme for permanent repair if adjacent to other repairs  | <b>S3</b><br><br>Monitor. Look for and attend to drainage issues.<br>Preventative maintenance: waterproof the area to prevent water ingress |   |
|                 | <b>RH - Rehab</b><br><b>H - Holding</b><br><br>Holding / make safe repair: fill and level with mix.<br>Programme for permanent repair as appropriate.   | <b>S1</b><br><br>Holding / make safe repair: fill and level with mix.<br>Programme for permanent repair as appropriate.  | <b>S2</b><br><br>Preventative maintenance: waterproof the area to prevent water ingress.  | <b>S3</b><br><br>Monitor  |   |
|                 |   |  |   |   |   |
| Severity Rating |   | U  | S1  | S2  | S3  |





A Final thought.....

NOC - 27,000 m<sup>2</sup>  
FH Business - 750,000 m<sup>2</sup>

15,000,000 m<sup>2</sup>

Thank you for listening!